We claim:

1.    An automated meter reading system having a host server interfaced to a plurality of nodes, each node communicating with a number of utility meters, the system comprising:

a selection means for selecting a group of noninterfering nodes; and

a first outbound RF broadcast channel from the host server for communicating with the selected group to initiate the reading of meters that communicate with those nodes of the selected group.

2.    The system of claim 1, further comprising:

a two-way communication link between the host server and each of the nodes and wherein the communication link is a wide area network.

3.    The system of claim 1, further comprising:

a number of gateways, each communicating with a plurality of nodes, the number of gateways being grouped to form sets of noninterfering gateways;

the selection means further selecting one of the sets of noninterfering gateways; and

a second outbound RF broadcast channel from the host server for communicating with the selected set to initiate uploading of meter data from the selected set to the host server.

4.    The system of 3, wherein the second outbound RF broadcast channel is an existing channel currently being used for demand side management.

5.    The system of claim 1, wherein the first outbound RF broadcast channel is used by the host server for communicating with the selected group to initiate the uploading of meter data provided by the meters that communicate with those nodes of the selected group.

6.    The system of 1, wherein the host server receives meter data read from at least one million meters in no more than about five minutes.

7.      The system of 1, wherein the first outbound RF broadcast channel is an existing channel currently being used for demand side management.

8.      A method for using an outbound RF channel to automatically read meters, wherein the meters communicate with at least one node, each node
5   communicating with a number of meters and a host server, the method comprising the steps of:

defining a number of groups of noninterfering nodes;

selecting a first group of noninterfering nodes;

broadcasting a read command to each node in the first group;

10  selecting a second group of noninterfering nodes;

broadcasting said read command to each node in the second group.

9.      The method of claim 8, further comprising the steps of:

reading meter data, in response to the read command, from each meter communicating with the node receiving the read command;

15  recording the meter data in a data storage means associated with said node;

broadcasting an upload message to each node in the first group;

uploading the meter data recorded in the data storage means associated with nodes of the first group to the host server;

20  broadcasting an upload message to each node in the second group; and

uploading the meter data recorded in the data storage means associated with nodes of the second group to the host server.

10.     The method of claim 8, wherein at least some of the nodes communicate through one of a number of gateways to the host server, each gateway
25  being interfaced to communicate with a number of nodes, the method further comprising the steps of:

reading meter data, in response to the read command, from each meter communicating with the node receiving the read command;

recording the meter data in a data storage means associated with said node;

selecting a first set of noninterfering gateways;

broadcasting an upload message to each gateway in the first set;

5          uploading the meter data recorded in the data storage means associated with the nodes that communicate with the first set of noninterfering gateways to the host server;

selecting a second set of noninterfering gateways;

broadcasting an upload message to each gateway in the second set;

10          uploading the meter data recorded in the data storage means associated with nodes that communicate with the second set of noninterfering gateways to the host server.

11.      An automated meter reading system comprising:

a plurality of utility meters for measuring and recording meter data;

15          a plurality of nodes, each node communicating with a number of predefined meters to read the meter data so recorded;

a plurality of gateways, each gateway communicating with a number of the nodes to receive the meter data;

a wide area network interfaced to communicate with the plurality of

20     gateways; and

a host server interfaced to communicate over the wide area network with the plurality of gateways to receive the meter data read by the nodes, the host server maintaining a topology database in which each meter is assigned to at least one node, each node is assigned to at least one gateway, and wherein nodes are grouped together

25     to define groups of noninterfering nodes and wherein gateways are grouped together to define sets of noninterfering gateways.

12.      The system of claim 11, wherein each of the plurality of nodes is adapted to receive RF broadcasts and wherein the host server sequentially broadcasts a communication over a first RF channel to each group of noninterfering nodes to initiate

30     meter reading.

13.    The system of claim 12, wherein each of the plurality of gateways is adapted to receive RF broadcasts and wherein the host server sequentially broadcasts an upload message over a second RF channel to each set of noninterfering gateways, the gateways uploading the meter data to the host server via a wide area
5    network in response to the upload message.

14.    A method of automatically reading a plurality of meters in an AMR system comprising meters, nodes, and gateways, wherein a number of meters are designated for communicating with one node and a number of nodes are designated to communicate with one gateway and each gateway communicates with a host server,
10    comprising the steps of:

selecting one of the nodes designated to communicate with each gateway;

grouping the selected nodes to form groups of noninterfering nodes;

forming sets of gateways such that each gateway within one set has an
15    individual gateway designator;

maintaining a topology database that uniquely identifies for each meter the set, gateway and node designators associated with said meter; and

reading the meters based on the set, gateway and node designators.

15.    The method of claim 14, further comprising the step of:
20    initiating meter reading by sequentially broadcasting a communication over an RF channel to each group of noninterfering nodes to initiate meter reading.

16.    The method of claim 15, further comprising the step of:

initiating the uploading of meter data by sequentially broadcasting an upload message over the RF channel to each group of noninterfering nodes.

17.     An automated meter reading system having a plurality of utility meters for measuring and recording metered data, a plurality of nodes, each node communicating with a number of designated meters to read the meter data, a plurality of gateways, each gateway communicating with a number of the nodes to receive the

5      meter data, a data network interfaced to communicate with the plurality of gateways, and a host server interfaced with the data network to receive the meter data read from the gateways, said host server maintaining a topology database comprising:

first electronic data representative of meter assignments to at least one node;

10             second electronic data electronically keyed to said first electronic data and representative of node assignments to at least one gateway;

third electronic data electronically keyed to the second electronic data for grouping together a plurality of nodes to define groups of noninterfering nodes based at least in part on the node assignments; and

15             fourth electronic data electronically keyed to the second electronic data for grouping together a plurality of gateways to define sets of noninterfering gateways.